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*The Cerebral Cortex and its Work.* HENRY MAUDSLEY. Mind. No. 58, April, 1890.

Those who may be interested in this line of thought will find a suggestive discussion in the above-mentioned paper, wherein the entire central nervous system is considered as an elaborate reflex apparatus. Sensory nerves are adapted for special stimuli, fit motor adjustment in response "is the fundamental quality of a perfect reflex action." Complexity of reaction is the criterion of a highly developed nervous system. The highest nerve centres are the store-houses of "adjustments and fit acts." Coming to the question of the motor centres of the cortex Maudsley asks "what actual relation of function the definite motor areas of the cortex have to the classes of movements which take place in consequence of their stimulation." He concludes, that it may be that no part of the so-called motor-region is really directly motor, but that it represents specialized movements, "abstracts of movement or motor abstracts, which are the efferent aspects of the cortical reflexes called thoughts." One corollary from this would be, no thought without movement.

*Proceedings of the Physiological Society*, 1890, No. IV, Journ. of Physiology, Vol. IX, No. 6.

Dr. Beevor gave a demonstration of the *cingulum*,—the longitudinal fibres of the *gyrus fornicatus*, and *gyrus hippocampi*—in the marmoset monkey. The most important general result was that the fibres forming the *cingulum* are not continuous from one end to the other, but are internuncial, running a short course in the *cingulum* and then turning out into the neighboring white matter. In that portion of the *cingulum* which lies dorsad of the *callosum* they thus appear to put the *gyrus fornicatus* in connection with the *centrum ovale*—an anatomical relation which is interesting in view of the observations of Schäfer and Horsley that removal of the *gyrus fornicatus* produces in monkeys tactile anæsthesia on the opposite side of the body.

*Complete Sclerosis of Goll's Columns and Chronic Spinal Leptomeningitis with Degenerative Changes in the Fibres of the Anterior and Posterior Roots.* F. W. MOTT, M. D. The Am. Journ. of the Medical Sciences. Vol. CL., No. I, Jan., 1891.

The case which the author describes was a male 46 years of age. His occupation exposed him to all weathers, and he drank rather heavily. History negative. He was admitted to Charing Cross Hospital on account of illness which had commenced some two years previously. He died, about twenty days after admission, of general tuberculosis of the lungs. The symptoms which are of interest in this connection were sudden failure of power in the legs, which increased until he lost completely the use of them, accompanied by pain, the legs becoming flexed and rigid. Weakness and wasting of the upper limbs developed later, but he did not completely lose the use of them. The reflexes were generally absent though a very faint knee-jerk was obtained on the right side. Sexual power was lost at the outset of the disease, but there was no difficulty in micturition or defecation. For the upper extremities the dermal sensations were normal. The only note on these sensations for the lower extremities is that tickling the soles of the feet was painful. The special senses and the movements of the muscles of the head and face were normal.

No note was made of the macroscopic appearance of the fresh cord. On sectioning the hardened cord the lumbar region was found free from degeneration up to the level of the first lumbar segment, but from this point to the cephalic portions of the cervical region the dorso-median columns were degenerated. The *dura* appeared normal but the *pia* was

the seat of a chronic *leptomeningitis* which caused a thickening and an encroachment of inflamed tissue on the periphery of the cord. Both dorsal and ventral nerve roots were extensively but irregularly degenerated, while the cells in the ventral *cornua*, in the column of Clarke, and in the spinal ganglia remained unaffected. The only other fibres found degenerated in the cord were scattered in the lower thoracic region in the dorso-lateral columns and in the mid-cervical region, located in the two wing-like masses, in the same columns. Inasmuch as the dorso-median column is sclerosed throughout and the initial lesion is assumed to be in the nerve roots between the cord and spinal ganglia, it is necessary to explain why this column alone is affected. The arteries of the sclerosed region have their walls enormously thickened, and the author suggests that it is possible to connect the sclerosis with the disturbance of nutrition thus indicated. He then quotes three cases of degeneration of the dorso-median columns in which the symptoms were somewhat similar to his own case and in two of which the muscular wasting was also observed. Before passing to the general conclusion it will be well to state what he assumes in the discussion, as expressed at the beginning of the paper. The fibres of the postero-median columns are formed from prolongations of the cells in the spinal ganglia and pass through the dorso-lateral columns on the way to their destination, but do not cross the middle line. It is probable that the fibres from the lumbar region become smaller in diameter as they ascend, for if a measured area of fibres in the lumbar region of this column be counted and a similar area, assumed to contain also fibres from the lumbar region, be counted in the cervical region, more fibres will be found in the second than in the first case. The fibres end in the post-pyramidal nucleus and, through the connections of this nucleus, in the cerebellum. The connection favors the idea that these fibres are paths for the muscle-sense, and the cases cited show that they do not conduct impulses connected with the sensations of touch, heat, cold or pain. Turning next to the conclusions which are based on the above statements and the cases given. They are in brief: 1. The dorso-median column may be connected with the transmission of impressions relating to the muscular sense or have some other function not yet determined. 2. The several cases given are similar in symptoms and reputed lesions. 3. The absence of knee-jerk, inability to stand, and wasting of the limbs, might be explained by lesion of the motor nerves which were more or less involved at their origin from the cord. Further, the disturbance might first express itself at the periphery in the motor end-plates, for though the nutritional disturbance might be too weak to affect the entire fibre it might show itself at the terminals which are furthest from the seat of nutrition. In the same way the complete destruction of the dorso-median column in the cervical region, while it is incompletely destroyed in the thoracic and lumbar regions (the fibres being considered continuous), is regarded as showing that the portions of the fibre most distant from the nutritive centre are most affected by the disturbance of nutrition. Further to support this view, idiopathic lateral sclerosis is mentioned.

[That the dorso-median column is connected with the cerebellum is a view far less well-supported than the current one, that its physiological continuation is in the arcuate fibres of the medulla. As regards their relation to the muscle-sense—in the author's case and two of those which he has cited, it is not stated that tests of the muscle-sense were made, and in the third case cited it is distinctly stated that the muscle-sense was normal. The motor phenomena can certainly be attributed to lesion of the motor elements and the view that nerves tend to degenerate at the point furthest removed from the nutritive centre, when the latter is affected, is, I believe, without experimental foundation.—REV.]